# California GARDEN

FORTY-THIRD YEAR | WINTER, 1952 | VOLUME 43, NO. 4

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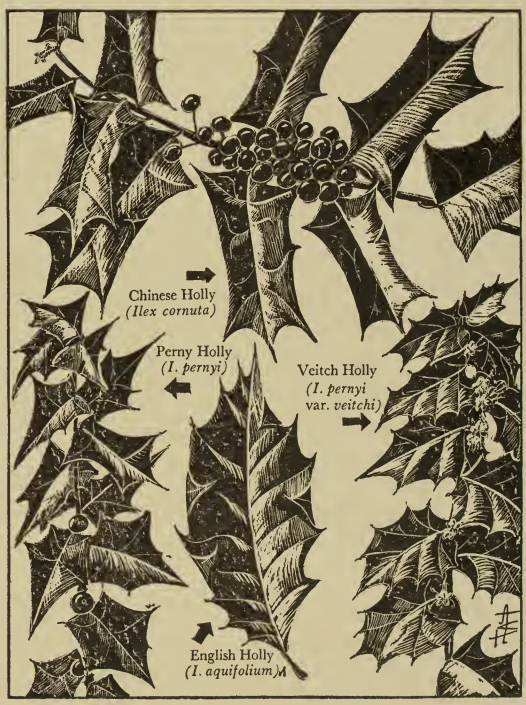
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# CALIFORNIA GARDEN

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## CALENDAR of EVENTS

**JANUARY**

TUESDAY, JANUARY 20 . . . 8 p.m.
Lewis A. Walmsley to lecture on "Costa Rica."

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# California Garden

FORTY-THIRD YEAR | WINTER 1952 | VOL. 43, NO. 4

*Mr. Fleming, whose absorbing interest in mistletoe commenced when California Garden was a monthly, submitted an article, "The Mysterious Mistletoe," to the Dec., 1916, issue, and follows it up 36 years later with a dessertation on this plant once held in veneration by the Druids. Mr. Fleming served as advertising manager and treasurer for the magazine in 1917 and 1918, and helped sell most of the ads for this issue.*

## *The Mistletoe Family*

Guy L. Fleming

Mistletoe, holly and other colorful berried shrubs symbolize the Christmas - New Year season. Their use in decoration during our mid-winter festivities had its beginning centuries before the Christian era. Therefore it seems appropriate that an historical outline of the origin of man's use of the mistletoe, and that the story of the world-wide distribution of these interesting sub-shrubs be presented to the readers of CALIFORNIA GARDEN at this time.

Our modern custom of hanging mistletoe in a doorway and the attending custom that whoever is caught standing beneath fruited clusters of this shrub may be kissed, have their origins in the time honored regard which our English, German and Norse ancestors held for this "mystic plant."




It is probable that the mistletoe can claim the greatest share of romance of all plant life. The name is presumed to be of Celtic origin and literally means "different twig." The name was applied to this strange semi-parasite in the days when the Druids were lords of all England. Because of its habit of growth upon trees it was held in great veneration by them, particularly if found growing upon an oak tree, which was a rare occurrence. The oak tree was a sacred tree of the Celtic tribes and whatever they found growing on one they regarded as having been placed there by their gods —a sign that that tree was divine.

At the time of the winter solstice, when the days began to lengthen, the mistletoe was gathered by the Druid priests with great ceremony and distributed by them among the people, who hung the fruited sprays on the door lintel as an offering of propitiation and of shelter to the sylvan dieties during the season of frost and cold.

Norsemen considered the mistletoe a mystic plant and one possessing great powers. Baldur, son of Odin, and the darling of the Norse gods, was slain with a spear which was tipped with mistletoe, the only member of the plant and animal families which Frigg, his mother, had failed to place under oath not to harm him. After the death of Baldur the Goddess of Love was made guardian of the mistletoe, and it was decreed that whoever passed beneath it should be kissed, to signify that it was an emblem of love and not of vengeance.

Legends and stories concerning



the mistletoe are many. But even more interesting is the botanical history of these strange plants, which through some process of plant evolution are required to live a semi-parasitic life on other plants.

The Mistletoe Family, *Loranthaceae,* contains 21 genera (plant groups) and about 600 species, mostly tropical or subtropical with representatives in all parts of the world, about equally divided between the eastern and western hemisphere. They are thought to be of tropical origin. Fossil remains have been found, the oldest known, *Phorodendron fossili,* of Ecuador, a living plant about 10,000,000 years ago.

The true "mistletoe" of Celtic and Norse legends is *Viscum album,* a genus found throughout Europe and western Asia.

In the New World, in both North and South America, there are over 200 species which belong to the genus *Phorodendron* (from two Greek words, phor, a thief, and dendron, a tree, referring to its semi-parasitic habit). These plants are closely related to, and somewhat resemble, the European genus *Viscum.*

Twenty-eight distinct species of Phorodendron belong to the United States, eight of this number are Californian, and seven of the state group are found in San Diego County.

The Oak Mistletoe, *Phorodendron villosum,* is generally found on the oak trees in our interior valleys and in our mountains. The Bigleaf Mistletoe, *Phorodendron longispicum,* occurs upon several of our soft-wood trees—cottonwoods, willows and sycamores being the usual hosts. This species has very large leaves, one to three inches in length. Its rather rank and sprawly growth makes it less desirable for decorative purposes than its attractive cousin, the Oak Mistletoe. Mistletoes found in floral shops during the holiday season may be one or the other of these species.

Other equally attractive, but little-known members of the Mistletoe Family are:

*Phorodendron densum,* the Juniper Mistletoe, parasitic on the California Juniper. This is a handsome mistletoe, with small, bronzy-green leaves, and a compact habit of growth.

*Phorodendron coloradense,* Colorado Desert Mistletoe, grows on the mesquite trees in the Vallecitos-Carrizo section of Anza Desert State Park and other areas of our desert region. The foliage and habit of growth of this plant are similar to those of Bigleafed Mistletoe.

*Phorodendron pauciflorum,* Fir Mistletoe. One must be a keen observer to spot this plant, which grows in the topmost branches of the White Fir. It can be found in Cuyamaca, Laguna and Palomar. The five species of mistletoe listed above all have well-developed

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leaves. The two species to be described next possess tiny, scale-like leaves and have the appearance of being leafless:

*Phorodendron Libocedri,* Incense-Cedar Mistletoe. This species may be found growing on the branches of Incense Cedar, but is well camouflaged, for its apparently leafless stems and its coloration closely resemble the foliage of its host.

*Phorodendron californicum,* Mesquite Mistletoe, California Mistletoe. This interesting member of the family selects as its hosts various trees and shrubs of our desert areas, and in particular the tree-like members of the Pea Family, California Ironwood, Catclaw Acacia, Palo Verde and Mesquite. This "leafless" species often grows in such profusion that the leaves of the host are hardly visible. The great mass of light green stems are aptly called "witches brooms," the tiny staminate flowers are yellow-green, and at this season of the year fill the air with a delicate fragrance. The grand display of this shrub is produced by its numerous fruiting spikelets laden with rosy pearl-like berries.

The genus Phorodendron belongs to the higher order of plants, for it has roots, stems, foliage and flowers. And as it has leaves it has the ability to manufacture the green pigment called chlorophyll, necessary in plant economy to assist in the assimilation of carbon dioxide from the air, and possesses the ability of transforming inorganic material into living tissue, drawing on the host only for water and raw food. Mistletoe plants are dioecious, the staminate, or pollen-bearing flower being on one plant, and the pistillae, or flower-forming fruits on another plant. This accounts for the fact that only a few of the many mistletoe clusters on an oak or a cottonwood will have berries.

The berries are white or pink, translucent, and contain a single seed embedded in a thick, sticky fluid. The general method of distribution of mistletoe from one tree, or shrub, to other trees or shrubs, is by robins, bluebirds, quail and other birds, who find these fall fruiting shrubs generous supply houses of delectable food. The sticky fluid serves in attaching seeds to the branches on which they may be deposited. The fluid flows over the seed sealing it in a dry, weatherproof cover.

After some weeks, or months, the seed may germinate and develop a tiny rootlet, called a radicle, which always turns toward the host branch, whether on the upper or lower side of the seed. Upon penetrating the bark the radicle develops other specialized roots called haustoria, which absorb water and food materials from the host plant. The young mistletoe plants grow very slowly and it may be a year or more before the seed leaves, the cotyledons, emerge. As the plants grow the haustoria spread up and down the twigs or branches of the host tree, or shrub. Roots growing near the surface of the bark may produce other plants, until, after years of growth, the original seed may have developed a large and spreading growth of foliage. When heavily infested with mistletoe the branches of the host tree become swollen and greatly enlarged. Sometimes a branch may die from strangulation caused by the roots of its semi-parasitic tenant. In such instance the tenant plant also dies. It is fortunate for the host plants that very few of the many thousands of seeds produced by the mistletoes germinate and develop into tenant plants. Some host plants have developed chemical means of repelling, or at least controlling the establishment of the mistletoe seedlings.

Where it may seem necessary to do so, mistletoe may be eradicated, or controlled, by removing the infested branches of the host tree. Cutting the mistletoe plant will stimulate the haustoria, the roots growing in the branch, to produce more mistletoe plants.

The Phorodendrons, whose San Diego County representatives have been described, are light seekers and therefore found growing in the tops of the host trees or well out on its branches.

An eighth member of the mistletoe family also grows in San Diego County. This plant belongs to the genus Arceuthobium (literally "living on juniper"). Our local species, however, is Arceuthobium campylopodum (curved stem), found growing on Yellow and Jeffrey Pines. This genus of plants are true parasites, yellowish or brownish in color with fragile jointed stems. The foliage has been reduced to small scales; therefore, the plants are solely dependent on their hosts for water and for all food. The fruiting plants produce light-green berries which contain a sticky sap. An interesting feature of this plant is its specialized method of seed distribution: as the fruits mature the sap develops pressure; when the berries are ripe they explode, throwing the sticky seed with enough force to attach it wherever it strikes.

The Pine Mistletoe is described as a shade seeker and may be found growing on the trunks and lower branches of the host trees.

There is much more to be told about the Mistletoe Family, and much more that can be learned by observing the distribution and habits of this unique group of plants. Good Yule!

*Mr. Puhn points out that not the least significant peril to our forests is comprised of people themselves!*

# *Perils to the San Diego County Forests*

Walter J. Puhn

San Diego County has only about 100 of its 4,528 square miles of land surface in coniferous forests. The fact that it has any stands of pine, fir and cedar at all is a wonder of nature. Compared to the usual habitat for western conifers the rainfall is too scant, the soil is too poor and thin, and the dry season is far too long and hot. Nor does it help to have a desert at the back door to generate searing blasts of wind over the mountains at many times of each year. Nevertheless, San Diego does have a respectable forest of conifers spread across the higher elevations of her backbone of mountains stretching from Palomar to the Mexican border. This forest in its better parts is not unlike the great forests of the Sierra at the middle elevations. There are the same Sugar, Jeffrey, and Ponderosa pines, and white firs, with the understory of oaks, ceanothus and braken fern. Only the stubby appearance and smaller sizes of the trees, the prevalence of Coulter pine, and the open, scattered stands give evidence that this is a semi-arid land where the conifers of northern climates are not expected to grow.

When civilization reached this area, the conifer stands were more extensive than they are today but were also in a very delicate balance. Through ages of plant succession, nature had slowly built up the soil and established the conifers in nearly all places the climate would permit them to grow. Any disturbance to the balance would cause the pine and fir to recede quickly and the fact that this has happened is attested by remnants of stumps that can be found far from where there are now any living trees. The disturbances to the forests of this area are many, complex and continually changing. There are no longer the threats of indiscriminate land clearing, lumbering and intentional burning in the coniferous stands, because there is growing such a pride and pleasure in the local forests that few, if any, people are willing to destroy them needlessly. On the other hand, there has come a new set of problems that threaten further inroads in all the stands and even make it a question whether the pines and firs of San Diego can permanently survive. These problems should be known to everyone who seeks enjoyment in the forest or benefits from its many resources.

Fire, of course, is the number one enemy of San Diego's conifer forests, and is responsible more than any other peril for destroying trees on thousands of acres in the County and having them replaced by dense chaparral. However, the pine and fir forests in their original state were not unduly susceptible to destruction or serious damage by fire. Open and park-like as compared to the dense timber of northern areas, fires spread slowly, seldom crowned, and were comparatively easy to control. Under present measures of fire protection provided by federal, state and local agencies with tank trucks, bulldozers, and other effective equipment, the pine and fir should now be assured of reasonable safety from fire damage. That this is not the case is clearly evident by the terrible devastation caused by recent fires such as the Conejos, the Laguna Junction, and the Indian Creek. There are two events which have built up a greater fire threat to the coniferous forests of Southern California than had ever existed before despite the fact that fire protection is far more advanced and intensified.

It was in the thirties that a lowly annual grass from the Mediterranean countries, Bromus tectorum or locally known as "cheat" or "bronco" grass made its rapid spread throughout most of the forest and range lands of the western states. It had no trouble in thoroughly establishing itself where the native perennial grass had become thin or nonexistent from heavy grazing, erosion or other cause. The invasion had become quite complete by 1939.

Cheat grass is the flashiest fire fuel known to western foresters. It matures and cures early and by late spring it is like so much gasoline spread under the brush and trees of our wild lands. It has replaced much of the comparatively fire resistant brush grasses and has created an explosive combination with the native, woody vegetation that can be touched off as easily as gun powder. This annual grass has had an astonishing effect on the ignition and spread of fires. Before its advent, many wild land areas in California were known as being "asbestos." That is, large fires seldom occurred and fire protection was no great problem. The park-like forests of Southern California and the forest and sagebrush lands east of the Sierras and Cascades were notable examples. These same areas now have a fire problem that is equal to almost any in the state. The forests in the San Diego County mountains have been no excep-

tion and have had their largest fires since the introduction of cheat grass. To insure them from further destruction will require more fire prevention and fire fighting facilities than are now provided.

The second unusual fire causing impact on the forests of this area is the rapid encroachment of dwellings and business operations in the mountain areas. It is well known that there is a high risk of fire from the forest visitor, hunter or fisherman because of the carelessly tossed cigarette or match or the unattended campfire. Much of the fire prevention effort has been aimed at these causes, and with a good amount of success, considering the tremendous influx of people visiting the local forests. Lesser known is the fact that more fires, and particularly many of the larger fires, are caused by the so called "developments" in the forests. A house catches fire, a power line breaks, a dump ground ignites from spontaneous combustion, as gas pump engine throws sparks, a vehicle burns, a resident dumps out ashes and other such incidents start scores of forest fires each fire season. Fires of this kind are exceedingly difficult to prevent by the usual methods, since the danger is often not recognized until it is too late.

With many new people coming to reside or work in the forests each year there are a number who have not previously experienced the very high hazard that exists here and do not readily acquire and practice the rigid code of fire prevention that is necessary. Although much of the forested land of the County is in public ownership by being in the Cleveland National Forest or the Cuyamaca Rancho State Park, there is a considerable amount of intermingling private land that can be developed for a variety of purposes and which is certain to bring an ever increasing amount of fire risks. It will be necessary to keep pace with intensified fire protection if the forests are to survive.

Second to fire and no less complex, are the perils of insects and diseases to the conifer stands of the county. Heavy losses in the pines of the Laguna Mountains were first given serious attention in 1925. First attempts of control of bark beetles occurred in 1929 but the dying of trees continued at an alarming rate. Control projects grew larger until 1940 when 4,132 pines were treated by the Civilian Conservation Corps during a single season. Yet timber mortality continued and reached even greater heights during the present drought period. The effects of the control work which was carried on annually began to appear disappointing and the outlook was rather discouraging. During that period, however, much was learned of the complex problems of disease and insects in this area by the foresters, entomologists and pathologists who observed and studied the conditions and causes of mortality. It was learned that five different species of beetles were causing most of the losses to the pines and that if damage of one species was controlled there was still the danger the trees might be attacked in a succeeding year by one or two of the others. The western pine beetle, the Ips, and the flathead borer were the principal killers but the roundhead borer and the turpentine beetle would also flare up and weaken or kill trees from tme to time. To add greatly to the complexity of the problem, it was discovered that a root-rot fungus, *Fomes annosus,* was present in about half of the trees being killed by beetles and was probably the real cause for the high mortality by reason of weakening the trees and making them more susceptible to insect attack. No practical control measure has been found for this fungus disease.

The serious drought condition that existed until this year brought an apparent subsidence in root-rot fungus attack. On the other hand, however, the dessication of forest soils brought on a general weakening of conifers in almost all mountain areas. Such a condition could only lead to a still more widespread infestation by the bark beetles and this is the situation which still faces our forests at the present time. It can be hoped, if the drought has run its course, that the conifers can gradually recover their vigor and ward off the insect attacks. It can be feared, however, that a wet cycle may possibly bring another build-up of the root-rot fungus in the Laguna Mountain area.

Despite the difficulties and complexities encountered, insect control measures are still continuing on national forest land. It is possible the effort has kept the infestations to smaller proportions than they would have otherwise been. Study of control work also brought developments that may prove of high value in the future. A toxic spray has been found to be effective and can be used in lieu of the usual method of burning the bark. It makes year around control work feasible, which is a desirable feature, and it may reduce the cost of control work, a factor which has now become quite critical. The outlook is not one of optimism, however. Unless weather and improved control measures some to the aid, there remains a distinct threat that coniferous trees in San Diego County can become nearly extinct, to be replaced by oak and chaparral. The values of the conifers

are so great that research should be intensified and followed by appropriate measures of control. The white fir trees have been reasonably secure from insects and disease but the current year has brought a noticeable increase in mortality from the fir engraver beetle. It is possible that an epidemic in the making can only be watched since there has been no practical control measure devised to combat this insect on a forest basis.

At one time the forester's job of forest protection was quite complete when he had instituted successful measures for the control of fires, insects, and diseases. In Southern California and in San Diego County in particular a new element of threat has entered the picture. It is one of people. The population has grown enormously and the forest areas available to public use have steadily diminished. The demand that has grown for the enjoyment of the conifer type forests in this relatively treesless area is one which is very difficult to meet without causing a further disturbance of the delicate balance of nature and which, as before mentioned, is now critically out of balance from the effects of fire, erosion, insects and diseases. The new threat is in two forms. One is the trampling of the forest soils by the crowds of people that concentrate around the resorts, camping places, and the more noted scenic spots. The trampling and the constant moving of vehicles on such areas is compacting the soil to the extent that weakens the trees and makes them easy prey for insects and diseases. Tree losses have been notably high in the picnic and campgrounds areas of the Laguna Mountains. More important, the constant movement of people is preventing the reproduction of conifers to replace those that have died or will succumb in the future. In the more heavily used areas it is virtually impossible to preserve the pine reproduction without having a strong barrier around each individual tree.

The other form of impact on trees by people is the one of developing the forests for occupancy and use. This factor has been previously mentioned in the discussion of forest fires, but the losses to timber goes on at a rapid rate in San Diego County in areas where there have been no fires of recent date. The conifer timber is being cut and removed to make way for the construction of buildings, highways, ski areas, play fields, rights of way for power, telephone and pipelines, and for countless other types of development. The annual loss is hardly noticeable because of its spotty occurrence. Yet, if all the areas which are cleared of trees each year were to be combined, it would present a sizeable acreage. Considering the amount of development that may occur in a 20 or 50 year period, which is a very short time in the life of a forest, the total loss of trees can be enormous. The losses are not entirely confined to clearing and fire. The undisposed slash from felled trees provides an excellent breeding habitat for bark beetles, particularly of the Ips species. They emerge in multiplied numbers and readily attack the nearby living trees of their choice. Groups of dead pines are a common sight in the vicinity of building and roads where there has been recent cutting of pines and the slash allowed to lie during the spring breeding period. The Ips beetles may also be bred and transported in unbarked, pine fuel wood which is commonly used in mountain areas. Further development of the forest areas in San Diego County is inevitable, but wise planning of uses and the proper disposal of slash and care of fire will go a long way in holding tree losses to a minimum.

Add to this list of perils the matters of indiscriminate or trespass cutting of Christmas trees, where forest reproduction is scarce, and one will have a rather complete picture of the precarious situation our conifer forests are in today. Conservation of our forest growth has made rapid progress in this area, but it is unmistakable that losses are still greater than growth and a most valuable resource continues to dwindle. It will be a difficult but not impossible task to halt the excessive drain of conifers and restore some of the land to forest growth. It will take a concerted effort of research and planning of intensified fire, insect, disease and fire control, a stepped-up program of reforestation and, above all, a wise use of the remaining resources. It can be accomplished by an informed and interested citizenry.

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*A dahlia expert shares the fruits from a wealth of experience and tells us—*

# *How to Dig and Store Your Dahlia Clumps*

Rose Marie Comstock

To the dahlia enthusiast, November in Southern California presents the problem of what to do with the plants that have given such joy and satisfaction all summer long. We know the plants should go dormant and the bulbs be dug and stored, but one wonders about the best method to achieve success.

We have talked to many, many dahlia growers throughout the country, both professional and amateurs and have heard as many different methods of storing bulbs from all of them. If you have found a successful method by all means do not change, but if you continually lose your bulbs each winter and must replace them every spring you might be interested in trying our method, which has proven most successful for us and for a great many others who have tried our way.

About the first of November you should gradually cut down the amount of water you have been giving them, to encourage the plants to die back slowly. While you are so doing the nourishment that heretofore went to the plant growth will go to the clump of bulbs maturing them for digging. As soon as the upper half of the plant has turned brown, which will probably take about two or three weeks, you should cut the plant off leaving only about a 12 inch piece of the main stock above the ground. Leave the clump in the ground for another week, providing a heavy rain is not expected before that week is up.

We shall assume that no rain is expected during this final week of maturing our clumps of bulbs and the day for digging has arrived. The proper tools required will be a garden fork, a sturdy pair of clippers and some garden labels or plant tags. With your fork, completely encircle the clump of bulbs extending the blades of the fork their full length into the soil, keeping at least 12 inches away from the stock. As you insert the fork into the soil, gently lift very slightly until you have completed the circle. Then reinsert the fork under the clump, and with the aid of a tight grasp on the stock sticking up above the ground lift the clump out. This must be done cautiously since any broken necks on the bulbs will render them incapable of growing the following season. Cut the stock off leaving only about two or three inches.

With a stream of water from a hose wash the soil from the clump. If you have sufficient time, divide the clump into individual bulbs at once. The eyes or tiny sprouts that are to be your plant next season are completely visible the moment you dig the clump. If the clump is allowed to stand for several hours the eyes will recede into the stock and you will not be able to see them to divide the clump properly. If you are rushed for time and cannot divide the clumps while you are digging them, it is best to split the clump into two halfs, cutting down thru the main stock.

It should be noted that on about 90% of the clumps, the main stock will be hollow and will have several tablespoons of water in this hollow. By splitting the clump in half this water is released, erasing the danger of the water soaking into the dormant clump and starting to rot. Cut off all fine feeder roots hanging on the bulbs, and cut away any bulbs that may appear to be rotting.

Now your problem is storage space. Half clumps take more room than individual bulbs. Individual bulbs are easier to handle. The easiest and quickest method of storage is to get a sturdy box and put a layer of sawdust, wood shavings or similar material on the bottom, then place a layer of your half clumps, being sure the clumps are upside down, or with the stock extending downward. This will allow any water in the stock to drain away from the bulbs instead of into them. Then another layer of sawdust or shavings, then another layer of clumps, etc., until all are stored. Cover the top layer of clumps with at least six inches of covering to keep any draft away. Draft on the bulbs will make them shrivel, leaving only shells. Boxes can be stored almost anywhere so long as they are protected from intense cold and will not be standing in water.

If you do not have too many bulbs to store or if you have a prize one you want to give special attention, store them by filling a seed flat or lug box with river sand, not beach sand, and bury the lower half of the bulbs in the damp sand with the neck of each bulb sticking up out of the sand. Have the sand damp, not wet, and set the box aside in a protected area. This is by far the best method of storage but since boxes of damp sand are so hard to move around, unless you have somewhere to keep it where it will not have to be moved during the winter this may prove to be hard work. This method is also most satisfactory from the standpoint of less work in the spring, as the

*(See Page 15)*

*Marion and Henry delve into the best ingredients for planting the poinsettia,* euphorbia pulcherrima, *as Henry prefers, or* Flor de la Nochebuena, *to quote Marion.*

# *Leaves From The Observer's Notebook*

Marion Almy Lippitt

I ran my finger along a line in the Sunset Flower Garden Book beginning with the word "Culture." "Grown outdoors, they reach the height of eight to ten feet, sometimes more. Seeds sown in May flower the same year."

It continued, "They should be planted in a warm sheltered place and in a rich, moist, well-fertilized, light loam."

I laughed.

"The last is Greek to me, an amateur gardener. I wish they'd be more speecific. Such as where Wise's Garden Encyclopedia says 'Grown as potted plants from cuttings three inches long they do best in one-half loam, one-quarter d.c.m., one-quarter leaf mold.'"

"If you would confide in me I could be more helpful," ramarked Henry, looking up pre-occupiedly from the pile of Christmas cards that I had inveigled him into addressing.

In answer to my questioning expression he added, "What are you planting?"

"Oh, poinsettias. Lots of them!"

"And may I ask why?" Henry enquired, evidently more interested in trying to decipher my address book than in what I was saying.

"Because I am tired of begging poinsettias from my neighbors every Christmas," I sputtered.

Henry viewed me dispassionately.

"You know, don't you, that you are dodging the issue by calling them poinsettias? Their name is *euphorbia pulcherrima."*

"But what I really like to call them is *Flor de la Nochebuena,"* I said, grandly matching my Spanish against his Latin.

I was about to launch into the Mexican legend of the Christmas flower—the poinsettia or the Flower of the Holy Night, when Henry stopped me.

"Wait," he said, "let me tell it to you. It'll take less time." In rapid singsong, as if repeating a learned lesson, he half intoned:

"On the Christ Child's birthday, Pedro had no offering. He cut stalks from the clump of plants under which he took his siesta. He carried them to the church and laid them in front of the altar. The next morning the worshippers knelt before the altar with its offering of green branches which had miraculously bloomed at the top with brilliant red flowers."

"Well," I acquiesced, "those are the bare facts, but you might at least have added a touch of human interest by telling us about Pedro's sorrow at having no offering. And you might have described how friendly and cool he found the shade of the leaves during his siesta. Gratitude for their friendly coolness was what he really offered. Pedro felt the Christ Child would understand and see more than just branches of green leaves.

"The facts are so bare," I said, doggedly, pursuing my subject, "that they inspire me to burst into praise of the poinsettia. I think I will read you the description of poinsettias in South Africa that I came across in Laurens Van Der Post's 'Venture to the Interior.'" I opened the book beside me, hoping to make my careful planning look careless, and read:

"I shall never forget the scarlet of the poinsettias as the early light caught them. At the end of their long golden stems they burst on the blue and gold of the still morning air like pistol shots . . ."

Perhaps some day I will learn that description doesn't interest Henry much. As soon as I had finished he changed the subject at once.

"Now tell me what d.c.m. means when used in the loam formula for potted poinsettias," he asked.

I looked about furtively as if the walls had ears. I beckened Henry to lean forward across the card table upon which he was working. Then I whispered,

"D equals dried, C equals cow, M equals manure!"

Henry put his hand over his eyes in a gesture of Victorian embarrassment. I heard him murmur,

"I know a girl who was so pure
She couldn't say the word
Manure."

I continued gaily:

"Indeed her modesty was such
She wouldn't pass a rabbit
hutch."

And Henry finished with

"And butterflies upon the wing
Would make her blush like
anything."

I was squirming about looking for Richard Arkell's book of poems "Green Fingers," when Henry produced it from his pocket and read me the last delightful verse of this poem: "The Perfect Lady."

"That lady is a gardner now
And all her views have changed,
somehow.
She squashes green flys with her
thumb

*(See Page 15)*

*Mrs. Burnett submits a mouth-watering recipe for Herb Brandy and has us convinced that no self-respecting cook will delay planting an herb garden.*

# *Plant Herbs . . . Plant History*

Ann Burnett

To plant a garden of herbs is to continue propagation that began in the very roots of civilization. Man's life began in a garden and in his garden were herbs as evidenced in Genesis 1:29, "Behold, I have given you every herb bearing seed which is upon the face of the earth . . ." Closely interwoven into the lives and destinies of men they form the backbone for three great sciences today . . . medicine, botany and chemistry.

Ebers Papyrus, written 1500 B.C. and before the Book of Exodus, list many of the herbs still grown in gardens today. Pliny the Elder (23-79 A.D.) devotes several volumes Vol: XX-XXVII of his NATURAL HISTORY published around 77 A.D. to the treatment of medical botany or the medicines derived from herbs. The U. S. Pharmacapaceia lists many of the herbs that Hippocrates, the first great physician, used in his treatment of diseases.

One of the oldest of the herb plants now in use is garlic. It was cultivated in Egypt from the earliest historical times and comprised much of the diet for the slaves who built the Pyramids of Cheops. (It was used as a pallative to guard against the burning rays of the tropical sun.) Today it is used in medicine as well as for culinary purposes.

Herbs have played an important part in folklore and in superstitious practices. Witches brewed their sinister herbs and voodoo magicians plied their trade in love charms or death potions. In Louisiana today one may still buy grisgris or voodoo charms. As late as 1940 a death was recorded from voodoo ceremonies.

For nearly 2000 years, secret formulae were handed down by word of mouth, containing hundreds of herbs as ingredients along with moss from human skulls, human skin, wings of birds, viper's tongues and herbs.

The Pilgrim Fathers brought these plants to this continent, possibly as a tie with their homeland. The harsh rocky soil and bitter winters of New England were not conducive to the raising of these plants and many did not weather the first winter. The Organizers of Virgina forced every man who settled in Colonial Virginia to plant six seeds of Anise, so important was that herb considered. Hyssop flourished in Colonial Virginia as a minute hedge. The Professors of the University of Virginia drew part of their salaries in herbs. Cookbooks dating from Colonial Days list many recipes calling for herbs—the uses of which are forgotten or little used. Thomas Jefferson lists in his writings 65 vegetables including herbs that he grew at Monticello. George Washington and many others of that time had herb gardens as evidenced by writings and restored gardens.

Since World War II a new impetus has been given to the raising of these fragrant and distinctive plants. Returning G. I.'s who became acquainted with European cooking have come home demanding more of this culinary magic.

In New Orleans, world famous for its cuisine, the herb garden has always been a "must" for every housewife. One visit to the market stalls of the Old French Quarters will show just how important herbs are to the Creole cook. Long rows of sage, mint, tarragon, marjoram and pot marigold may be found. Many other medicinal herbs as well as culinary ones are sold.

The French cooks include six herbs as regularly as they do salt and pepper for use in their kitchens. The six being sweet basil, thyme, rosemary, tarragon, marjoram and chervil — popularly called "les fines herbes." For the "piece de resistance" in French cooking use Herb Brandy. To make—fill a jar half full of brandy. Pick fresh leaves of thyme, mint, marjoram, chervil, basil and rosemary and drop into brandy. Let steep covered for two to three days in a cool place. Remove leaves and add fresh ones, continuing until brandy acquires a strong pungent odor of herbs. Add teaspoonful to salad dressing or butter for a "soul warming experience." The amateur gardener will do well to stick to the raising of the six more popular herbs. Your herb garden may be a plot of ground two by four feet. Most herbs are grown from seed with the exception of Tarragon and Horse-radish which is propagated from the roots. Since herbs are native to the territory surrounding the Mediterranean they like a dry, poor, soil. The soil must be well drained and the herbs placed in the garden where they have a warm, sunny exposure. There are a few exceptions. Tarragon does well in the shade. Household mint prefers a moist, woodsy soil. Parsley and chives like a rich soil and shade at least a portion of the day.

Louisiana enjoys her internationally famous reputation for fine restaurants — a reputation based upon the culinary art of the Creoles. The Choctaw Indians, who powdered the sassafras leaves to obtain a product called file, gave

this to the Creoles who use it as a basis for gumbo. Bay leaf, celery, onions, parsley, thyme, shallots, basil, cloves, allspice and peppers all play a part in seasoning in Louisiana. ROUX, a mixture of various seasonings is sold in the market stalls today. ROUX, is made by the careful browning of flour in melted butter. After simmering, carefully, the ingredients blend in a composite seasoning.

Mint is a must in the Mint Juleps of the South, as a companion for lamb—and to add zest to fresh young garden peas—is one of the most important herbs in industry today. Consisting of around 3200 species (Labiatae or Menthacae) is valued as a stimulant, for flavorings and in perfumery.

Sage is just as important today as it was over 400 years ago—

So important has the raising and using of herbs become, the staid United States Department of Agriculture has issued a booklet," SAVORY HERBS—THEIR CULTURE AND THEIR USE." Whatever you plant, however you use, whether for culinary or medicinal purposes—or even to brew up a love potion—when you plant herbs you plant history.

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*Follow Mr. Davis' advice and your Saintpaulias will reward you the year around.*

# *The African Violet*

J. O. Davis

The African Violet is among the most popular of today's house plants. No other plant blooms so consistently and makes such a colorful window garden with so little care. The hundreds of varieties on the market today offer a wide range of colors from deepest blue through the pastels to pure white. Among the late introductions are some most interesting doubles in many brilliant shades. No one has been able to produce a yellow to date. There are many types of foliage of which some are very beautiful and these varieties are extremely striking even when not in bloom.

Perhaps a few suggestions will help you to successfully grow African Violets and bring them into bloom in your home. Culture is not difficult if one understands a few of their requirements. Primarily remember the Saintpaulia is called an African Violet because it originally came from Africa—a warm climate. Hence a cold room will not promote growth and bloom. The temperature should rarely be below 65 degrees. Light induces bloom so do not place your plants in a dark location. A bright window is best in which full sun is filtered, if so exposed. Potting soil should not be too heavy as the roots must breathe, as well as the leaves, and good drainage is essential. The soil should be kept fairly moist. Contrary to general belief Saintpaulias may be watered from above and enjoy having their leaves washed off if the water is tepid, about 70 degrees. Place in a shaded location 'til dry. This practice also helps keep the pots clean. Periodic feeding is necessary as continuous watering leaches out the soil. At our nursery we find Hyponex very satisfactory but whatever you use follow directions. An occasional spraying with a good insecticide, such as Optox, is a precaution against possible infestation of various pests.

Behnke Nurseries offer some Do's and Don't which may be helpful to you so I pass them on.

## DO'S

Furnish drainage.

Watch for insects and diseases.

Feed once a month.

Wash off leaves weekly with luke warm water.

Furnish humidity.

Water your plants when they need it.

Experiment until successful.

Take off damaged leaves.

Take off old flowers and stalks.

Provide ventilation.

Give them enough light.

Try different exposures if no blooms.

Use sterilized soil, high in organic matter.

TRY NEW VARIETIES.

## DONT'S

Don't overwater.

Don't overpot. (Violets like to be pot-bound.)

Don't use cold water.

Don't expose to direct sun-light too long.

Don't subject to sudden drastic temperature changes.

Don't expose to temperatures of less than 60 degrees.

Don't expose to drafts.

Don't use heavy soil.

## DON'T GIVE UP!

For those who wish to make an intensive hobby of Saintpaulias, there is much current literature. The African Violet Society publishes an excellent magazine, quarterly. Books on African Violets worthy of mention among others are—

All About African Violets, by Montague Free, $3.50.

Complete Book of African Violets, by Helen Van Pelt Wilson, $2.95.

How To Grow African Violets, by Carolyn Rector, $1.35.

Best wishes for success with "America's Favorite House Plant."

**PINE HILLS LODGE**
**Closed for Repairs**
**Will Open Early in January**

*Mr. Hottes, whose artistic sketches decorate each cover of California Garden, is as accurate with his word pictures as those from the drawing board, and this season focuses both talents on Nature's handiwork, Holly.*

# *Ilex-Holly*

ALFRED C. HOTTES

I'lex. It is an old name for Holm Oak, *Quercus ilex.* Family Aquifoliaceae, related to Nemopanthus.

The various kinds of Holly have been considered some of the most beautiful foliage and berry plants cultivated since ancient times. The Eastern Holly or American Holly, *Ilex opaca,* is not as beautiful as some other sorts because of its duller leaves. It is seldom grown in California.

English Holly, *Ilex aquifolium,* is a native of western and southern Europe, northern Africa, western Asia to China. It makes a dense, pyramidal head and often grows 75 feet tall, but generally much less. The flowers are rather inconspicuous, white, produced in May on last year's wood. The glossy leaves have large, triangular, spiny teeth. The surface of the leaf is generally not flat, but the margins are wavy. The berries are bright red. There are a number of varieties, especially grown in Europe, based on the variations in the foliage. The Hedgehog Holly, variety *ferox,* has leaves with short teeth but numerous spines on the upper surface of the leaf as well. Variety *heterophylla* has but few or no teeth. The leaves are elliptical to elliptical-ovate, about two and a half inches long. Besides this, there are all patterns of blotching, variegations, and margining of the leaves in white or yellow. Most of these have been given variety names. See "Growing English Holly," a leaflet by H. M. Butterfield, College of Agriculture, Berkeley, California.

*Culture.* The English Holly is not seen thriving as it should in most sections of California although sometimes one comes upon splendid specimens in very favorable locations. It is at its best in Washington and Oregon where the Pacific Ocean and Puget Sound give it a rainfall of 40 inches or more in a season. Holly will withstand any normal temperatures found in California except the heat of the desert.

Dahoon, *Ilex cassine.* This is another species found wild from North Carolina to Florida and west to Louisiana which is seen as a 30-foot tree or a large shrub. The leaves are generally two to three inches long, without teeth, but sometimes show a few very shallow ones. The berries are red but much duller than those of the Yaupon.

The Chinese Holly, Horned Holly, *Ilex cornuta,* is the species which should be raised in California. It was introduced in 1846, from China, but only became common in the last 25 years when its superiority to the English Holly is being recognized. It is not a big tree, seldom attaining more than 10 feet in height but as generally seen it is lower growing, being broad and dense. The leaves can be identified from the sketch on the cover. They are very dark green, lustrous, and sometimes the margins are so wavy as to cause us to confuse it with the English Holly but the Chinese H. leaves are generally flatter. The fruit are large but not as plentiful as in English Holly. Variety *burfordi* has drooping branches, rich glossy leaves, with smooth margins, except for two or three spines at the end. The berries are gorgeous and abundant. Clarke says this must be a hybrid as the seedlings revert to the typical Chinese H.

Uses. By pruning, the Chinese H. may be trained to a narrow pyramid for a foundation planting or it may be kept as a low, very compact plant which, due to the thorns, acts as an excellent foil for children and dogs. The plants are frequently grown in tubs. Such formal speciments are of value in patios or as entrances to garden areas. Obviously, the cut branches with their berries are in great demand for Christmas decoration.

*Culture.* As we have inferred above, this Holly is successful in most sections of California especially in the hotter, drier regions. Of course, it is not a dry soil plant responding as it does to good culture, feeding, and a plentiful supply of water.

All Hollies are inclined to be shy fruit bearing unless more than one specimen is grown, for some of them are only male plants, others are female, still others are hermaphroditic. Nurserymen propagate the hermaphroditic forms which means, of course, they may produce their fruits without the presence of a pollenizer, but, to be safe, it is better to have a number of plants so as to be sure of at least one fruit bearer.

Perny Holly, *Ilex pernyi,* (See cover illustration) is a smaller leaf Holly introduced from central and western China. It is generally seen as a shrub but is supposed to grow 30 feet tall. The flowers are pale yellow, produced in May. The foliage is kite-shaped, one half to one and a fourth inches long, one to three spines on each side. The globose, red berries, though clustered sometimes, are more often produced individually.

Variety *veitchi. Veitch Holly,* has larger, broader leaves, with

*Harold L. Curtiss, member of the American Society of Landscape Architects, advises:*

# *Winter Planting for Fall Color*

Landscape architects designing the modern gardens of our newer homes turn with increasing interest to those shrubs and trees which provide the old golds, the brilliant crimsons and scarlets and other fall colors during that season of the year when gardens generally may be devoid of interest.

Let us consider their use, arrangement and placing in the scheme of things from a landscape viewpoint. One way of approaching this problem is to look at plants as materials that should be grouped into four separate categories, based upon their adaptability or usefulness for enclosure, surfacing, shelter and enrichment.

With this in mind let us confine our selection to an even dozen of the most popular species of plants for fall color which can be found locally and see how they group themselves under these four headings.

*FOR ENCLOSURE*—From a number of varieties we select four. *Cotoneaster pannosa* and other taller growing cotoneasters, of which there are many. *Pyracantha yunnanensis* belongs under *Surfacing* because it tends to spread and is useful for covering banks. Its sister varieties however, the "Firethorns," belong at the back of the shrubbery border, where they serve admirably for purposes of enclosure. Roland Hoyt's "Ornamental Plants for Subtropical Regions" lists a number of these different varieties, and more are coming on the market from year to year. *Heteromeles arbutifolia,* "Toyon," "California Holly," is an outstanding native shrub of large proportions with great quantities of bright red berries, frequently seen along the south slopes of Mission Valley and in the upper end of Tecolote Creek. *Ilex cornuta,* "Chinese Holly," has large red berries, dark green leaves, is slow growing.

*FOR SURFACING*—from several varieties we select two, chosen for their red berries. *Cotoneaster horizontalis* — a low spreading ground cover with flat sprays of glowing crimson berries, which, combined with its deep red leaves (red only in the fall) make it an attractive plant in the foreground.

*FOR SHELTER*—from numerous species we select three. *Liquidambar styraciflua* — "Sweet Gum." The majority of Southern California landscape architects polled recently consider this tree to be our finest for fall color with its maple-like leaves that turn from a light, clear green in spring time to the gorgeous red and bronze autumn colors. *Ginkgo biloba* — "Sacred - Tree-of - China." The light green leaves turn to old gold or pale yellow in the fall and hang on until after Thanksgiving Day. *Populus nigra italica* — "Lombardy Poplar."

*FOR ENRICHMENT* — from many colorful plants we select four for their fall colors. *Acer palmatum*—"Japanese Maple." A small tree of choice habit and fine foliage, it is slow growing, and is an elegant addition to the fine specimen trees of a garden. *Ilex cornuta Burford*—"Burford Holly." With its glossy deep-green holly-like foliage, this is one of the finest hollies for our part of the country.

*Nandina domestica*—"Celestial Bamboo." The entire plant turns to a rich coppery-red in the fall and its clusters of berries are most welcome. *Parthenocissus tricuspidata veitchi* — "Small-leaved Boston Ivy." Choice for its soft scarlet and yellow leaves in the fall.

PLANT IN THE WINTER FOR FALL COLOR NEXT YEAR!

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four to five rigid spines on each side.

*Uses and Culture.* The Perny and Veitch Hollies have not been extensively grown by nurserymen, as they are slow in developing good-size plants with the consequent higher price which they must demand. But these are indeed elite plants for the front of a planting, or in spots where they can be closely observed. This is growing well at Golden Gate Park, San Francisco.

*Ilex sikkimensis* from the Himalayas, according to Clarke, of San Jose, has the finest foliage of any Ilex. It is a moderately tall tree and the foliage is six to seven inches long with wavy, prickly margins. The fruits are yellow. It is one of the experimental plants sent out a few years ago by the Bureau of Plant Introduction as No. 62810.

Yaupon, Cassina, *Ilex vomitoria.* This small tree or large shrub has evergreen leaves one to two inches long, with round teeth, but they are not what are usually thought of as Holly-like. It is found wild from Virginia to Florida, west to Arkansas and Texas, where it gives a splendid display of red berries throughout the entire winter as it grows along the streams and roadsides.

*Ilex yunnanensis,* the Yunnan Holly, has small leaves which are small like a Box, and not Holly-like. It grows 10 to 12 feet tall and is a slow grower. Note this: the flowers are pink; in all the others they are white or yellowish. The berries are red, coloring in September.

*The Walmsleys found a challenge in nematodes, and tell about being—*

# *On the Trail of the Ubiquitous Nematode*

Lewis and Faye Walmsley

As a young man working in greenhouses in the Middle West, I occasionally heard of root-knot trouble on plants. I remember finding some on benched snapdragons. But it was not until I came to California that the depredations of root knot nematode became of sufficient importance to put me on its trail.

As Superintendent of Parks in San Bernardino in 1930, it was necessary to treat some of our park flower beds with Cyanogas before planting annuals. At this time we started collecting cactus and succluents and began getting together a large propagating stock which we moved to Soledad Gardens in Pacific Beach in 1931. Nearly all cactus and succulents are subject to root knot nematode, and we found some infested plants in nearly every lot we purchased. The two acres we purchased from Miss Kate Sessions had not been in cultivation for a number of years and we thought it would be free from nematodes. We removed the roots and started new cuttings on most of the plants we brought in. On those where this was impossible we soaked the roots in a strong solution of bichloride of mercury (corrosive sublimate). This was an idea of my own which apparently worked fine at killing nematodes but also embalmed most of the plants. Within a few months after planting we began to have nematode trouble.

The San Diego Agricultural Department recommended treating the ground with carbon bisulphide. The plants had to be dug, new cuttings made, the beds treated with carbon bisulphide, and replanted a month or two later. We tried varying dosages up to 10 times the amount recommended. Within six months to a year the nematodes were going strong again. We also tried removing the plants, spading the ground deep, saturating with a strong solution of sulphate of ammonia and saturating again the next day or two with a strong solution of sodium cyanide, with the same results as the carbon bisulphide.

Timothy Aller, then a nursery inspector, was interested in our problem and experiments and we decided between us to get together all the information then available from federal and state agricultural departments. We did not get any new information at that time on how to get rid of nematodes. We did learn that they had been found on roots to a depth of 24 feet, that they were becoming a problem in peony fields on the shores of Lake Michigan and in greenhouses throughout the country, that they were a real menace to many crops in California and the southern states, that they had survived over long periods under flooded fields, that eggs could stay alive for many years, hatch out, and start new infestations.

Since then, we have tried napthalene, a patented English soil disinfectant, tear gas, ethyl bromide, dichloral ethyl ether, and cyanogas in our soil. None of these treatments killed all the nematodes in the soil or prevented maximum development in from six months to a year. I don't say that some of these treatments would not be effective on other types of soil or that they would not be effective on crops maturing within six to eight months or even longer on very shallow rooting plants. But none of these treatments was effective on our type of soil, as most of our plants were deep rooting and stayed in the same field for several years. Our soil is adobe or adobe overlaid with a sandy loam varying in depth from a few inches to several feet. One tract of ground which we later purchased and planted had been planted to Poinsettias 12 years before and left uncultivated thereafter. We checked weeds for nematodes and found none, planted only unrooted cuttings or seedlings grown in sterilized soil. For about six months we were free from nematodes in this field but as roots reached down through the sandy loam they began to be infested with nematodes where the tips of the roots hit the adobe and from thereon the nematodes had it their own way.

Chemical or steam sterilizing of soil for flats or potting can be thoroughly effective. We now use a steam sterilizer for this purpose.

Upon hatching from the eggs nematodes are not visible to the naked eye. They circulate in the soil and breed. The females then imbed themselves in the succulent roots of plants which form knots of unhealthy tissue around them. As eggs form in these females, they enlarge until they are visible as tiny translucent spheres within the knots. Here they die and the eggs await favorable conditions of heat, moisture, and air, when they hatch and the cycle is renewed.

Five years ago we were growing a second crop of chrysanthemums on ground which I knew to be badly infested with nematodes. For the second year this ground had been heavily mulched with riding stable litter consisting of sawdust shavings and horse manure, plus poultry manure, the

previous mulch having been plowed under before replanting. In June, tomato seedlings began to come up at the base of our overhead sprinklers where birds perching on the sprinklers had conveniently dropped the seeds. I found the boys working for us tying up these plants to the sprinkler pipes. I told them that that ground was badly infested with nematodes and that their efforts were useless, but gave in and let them try it. Imagine my surprise when these tomato plants bore a wonderful crop clear into February. I examined their roots on taking them out and found very few nematodes.

We started growing tropical plants under lath and began to experiment with these materials. From the start we found that they checked the extent of nematode infestation. But, just as I had known you couldn't grow tomatoes on nematode infested ground, I knew that you couldn't use great quantities of fresh poultry manure spaded into the ground without burning the roots off of everything. Again I proved myself wrong. We kept increasing the dosage until last year we reached the point where complete elimination of nematodes seem to have resulted. We found in our experiments that twice as much riding stable litter as poultry manure by bulk seemed to be the proper proportion and the maximum and most effective dosage was four inches of riding stable litter and two inches of fresh poultry manure, rototillered or spaded into the ground as deeply as possible. Our ground is sandy loam overlying adobe and the material was worked in to an average depth of about nine inches. After working the material in and leveling the ground, it is watered thoroughly and contrary to my former beliefs we now plant within a few days, as soon as the ground is sufficiently dry. After planting, we use a mulch of riding stable litter and renew this mulch with the addition of some poultry manure, at six months intervals. We have even planted nematode infested plants and had them cleaned up and free from nematodes within six months.

What happens to the nematodes? When I answer this question I have to admit that it is guess work but I am satisfied with my guess and until somebody can offer a better one, here it is:

Faye once discovered a whale in a drop of water under a microscope and it swam out of range and she was never able to find it again. I didn't own a microscope or know how to use one, but those who do will admit that what goes on underground is pretty much an unexplored world. From what they can tell us, we know that crude cellulose such as sawdust shavings and straw is broken down into humus by microscopic plant organisms. These microscopic plants like other plants depend on nitrogen for rapid growth and they are so much more efficient than larger plants in the use of nitrogen that sufficient nitrogen fertilizer must be supplied with shavings or sawdust to feed both the crop grown and these microscopic plants or they will lock up all the nitrogen and starve the crop. As I understand it, these microscopic plants or bacteria divide themselves into three work gangs. One group moves in and starts work increasing very rapidly until the crude material is broken down to a certain point where it is no longer satisfactory for their consumption and most of them die out. At which point another gang moves in and takes up the work where they left off, with the same results. After which a third group takes over. It is the first group which locks up the free ammonia in the poultry manure and prevents it from burning the roots. When it has multiplied to the optimum and is getting hungry, it is my guess, substantiated by my own observation, that it goes to work on the half dead wood of the root knot, breaking it down completely without injuring healthy parts of the root. Immature nematode eggs are probably destroyed and mature eggs, at least in the earlier mild treatments hatch and reinfest soft tips of the roots. These new knots are again broken down before the nematode eggs mature. Where we have used the maximum dosage of riding stable litter and poultry manure, we have not noticed any reinfestation after the original root knots are broken down.

It is claimed by some of the organic gardening people that angle worms which live mainly on bacteria will also eat nematode eggs and destroy them, and this may be a factor as the heavy dosages of riding stable litter and poultry manure create a perfect angle worm heaven. Where less than the maximum dosage has been used and where the same crop has stayed in the ground for over a year without the addition of poultry manure and riding stable litter as a mulch, reinfestation has appeared but results as a whole have been so phenomenally successful that I have been willing, upon request, to stick my neck out and tell both what I do and don't know about nematodes.

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*(From Page 7)*

bulbs can be sprouted right in the same box of sand without any additional handling.

Earlier in this article we said that we would assume that no heavy rain was expected the final week we were allowing our dormant clumps to remain in the ground. If the weatherman should turn the tables on you and it looks like rain, dig your bulbs at once. If these dormant clumps remain in very wet soil for two or three days you may find the entire clump completely rotted away when you do get around to digging them.

Good luck with your digging and storage and in the spring I shall tell you how to sprout your bulbs and prepare your soil for planting.

---

*(From Page 8)*

And knows how little snowdrops come:
In fact, the garden she has got,
Has broadened out her mind a lot."

Without further comment he left me chuckling while he returned to addressing cards in silence. Soon a puzzled frown showed on his face.

"What now?" I asked.

"Explain to me why Arthur Allen is under C in your address book?"

"Beecause I get Robert Allen and Arthur Allen mixed up, but as Arthur is the Colonel I put him under C. I know I'll always remember them that way."

Henry leaned back, folded his arms, and gazed at the ceiling.

"Blow me down," he muttered, "and call me George Burns!"

"Isn't it clear?" I asked in an innocent Gracie voice.

"Yes," said Henry blinking, "so clear it dazzles me."

*How many of you knew that—*

# *It's Simple to Grow Plants in Containers*

Lucien C. Atherton

Here's a thought for you camellia-loving city dwellers whose space for planting seems to limit you to a bare half-dozen plants.

Has it ever occurred to you that containers are your relief from the difficulty you find yourself in, and that by means of containers you can have many of the new, and rare, and lovely varieties?

Do you know that in the colder climates, especially in Europe, camellias have been growing in containers for a hundred and more years? They thrive and bloom through season after seeason never knowing that their cousins here on the Pacific Coast and in the Southern portion of the United States grow in the ground.

What does all this have to do with you city dwellers? Just this: you also may employ the same container culture which has been used in hothouses in the East and in Europe these many years, and multiply the number of plants which you now have, because of the smaller space required by container culture than is required by plants in the ground.

But space is not the only advantage. When your plants are in bloom you may have them where they can be displayed to the best advantage. When the blooming season has passed, they may be conveyed to the rear of the lot to await another season when they will delight you with their beeauty.

Of course, container plants must be cared for during the off-seasons just as do those plants in the ground, more so, even, because they require more frequent irrigation. On the other hand, they are more easily fertilized, and the advantages to be gained more than offset what small amount of additional care is required.

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# *Garden Chores*

ADA PERRY

All sorts of things come bare root: Bechtel's Crabs, flowering quinces, California sycamores, bridal wreath, white birches, gooseberries, asparagus, rose bushes and rhubarb roots. Who could ask for anything more?

So I asked Alice Greer what months I'd better write about and she said, "Oh, January and February." You know how she does. Just tosses things off.

Friend or Foe, I dare you to toss off February and March. You can't do it unless you're in awful good training. The first paragraph which I have strung together with a light sprinkling of ridiculousness is just the beginning. Just the beginning, Folks, just the beginning of the gardening you can begin to do in January and February.

It's fun in a different way, too. You can see the roots of what you're planting. You can bring home a bale of various things and whack 'em back and set 'em in and see sprouts coming out of bare old sticks and clumps and have a whale of a good time.

You should, of course, get a rag tape or some measuring poles and do some planning while you're planting. It won't do to have the peach trees a yard apart. Or the asparagus roots 20 feet apart. But you not only can but do plant white birches a yard apart when you want a group of three. The Bakersfield Boy down where I work says not only birches but sycamores and pines are for this group of three stuff and evergreen ashes as well. This gave me the inspiration to dub him the Brushwood Boy if that isn't original. Tree groups do add distinction to plantings and there's no better time than bare root season for starting them. Wisteria vines come bare root, too, and I did love the couple last year who planted wisteria venusta alba along a stone wall. "White wisteria with silky foliage" is what that means. Pretty, hm?

There are other couples who will plant half a dozen bare root climbing roses this January and February, two pinks, a yellow, a copper, a white and a red. Maybe they'll set out eight new bushes, one of them a Chrystler Imperial; maybe they'll set out 20 new bushes, more than half of them floribundas. No genii from a bottle could be more amazing than the rose that develops in a short time from a thorny, bare, awkward bare-root bush.

By the way, do you ever wonder how come a Rose is so popular? She sticks you, she mildews all over you, she doesn't watch her shape, she eats like a pig and she'll snag your nylons, your plastic soaker and your hand tailored shorts as quick as a wink.

Eastern lilacs, apricot trees, nectarines, plums, boysen berries and grapes are some of the other very important bare root things to set out in January and February. And it's plain mercy that fuchsia and poinsettia pruning, and tuberous rooted begonia and dahlia sprouting can be left until March and April, and chrysanthemum slipping, too.

Preparing soil for bare root things is mostly a matter of digging. You dig to find out about the drainage—the future root homes of your plants. You dig to add beneficial materials like bone meal, leaf mold, peat moss, coarse sand, tested top soil. You dig to bring soil from one part of your garden to another. You dig to trench in manure so it can be wet down and cooled off and mixed in and covered up with plain soil. You dig to mix peat and soil conditioners into surfaces so they will not bake hard in the cold, dry winds we have at times. Soil never bakes so hard as some of the days during bare root planting season.

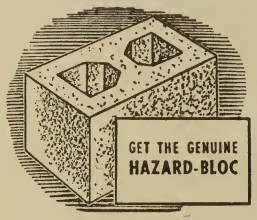
Pruning of your present deciduous fruit trees and roses will be current with the planting of new ones. We do not as a rule prune lower than 18 inches for bush roses here and we strive for a shapely frame work rather than a severe cutting back. We don't advise cutting back climbers. Thinning out and heading back is suggested, instead.

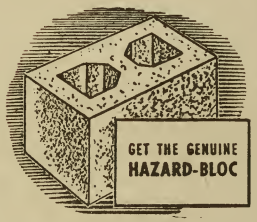
You can use lime sulphur winter sprays on your peaches and roses. You can use bordeaux sprays on your apricots, and you can use oil sprays on your citrus. Write spray proportions on a plant tag or something and fasten them to the bottle. Then you won't have to look them up every time. Or, look them up every time. This is one of my favorite ways of aggravating myself. Why should I deny it to others?

Why don't you plant some California poppy seeds in the lantana this year?

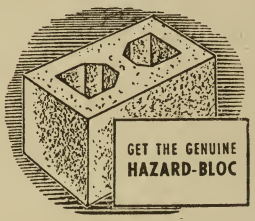
I have had more people say to me, "I want to plant a tree I can sit under—this year, not next year or the year after." It must be a common experience of nursery people because one big tree nursery has done something about it. In a very up to date manner, too. Like ready to eat hams and oven prepared turkeys. Your tree that is six to eight feet tall comes packaged to plant. It is well grown with a perfectly trained trunk and its root ball is packaged in a light weight wooden shake box that is expendable. When the hole's ready, you set the tree in, hack a few holes in the sides of the box and cut its wires and then finish planting.

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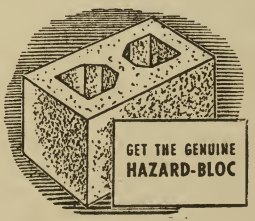


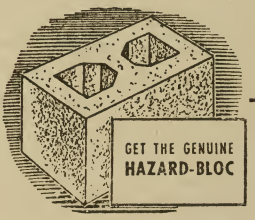

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